CLAIMS

We claim:

1. In a computer system including plurality of cells, each comprising at least one processor having an operating system associated therewith, wherein each of the cells is connected to a peripheral backplane containing a plurality of peripheral I/O card slots, an event notification system for detecting and routing platform event information relating to removal and replacement of peripheral I/O cards during operation of the computer system, the event notification system comprising:

a supervisory processor, connected to each said cell via said backplane;

a plurality of doorbell switches, each associated with a specific said I/O card slot and operatively coupled to said supervisory processor, for providing, to the supervisory processor, a doorbell event indicating that a user is ready to remove a specific said I/O card from said card slot associated therewith;

a local service processor in each cell, interfaced to the operating system and operatively coupled to the supervisory processor via a link for sending said platform events including said doorbell event from the supervisory processor to the local service processor;

wherein the operating system powers down the card slot associated with the specific said I/O card in response to notification, from the local service processor, of the doorbell event.

2. The event notification system of claim 1, further including a plurality of latches, each associated with a single said I/O card slot and operatively coupled to said supervisory processor, for providing, to the supervisory processor, a latch event indicative of the presence of one of said cards in a specific said slot;

wherein one of said platform events includes said latch event; and

wherein the operating system powers up the specific said slot in response to notification, from the local service processor, of said latch event indicating that a card has been inserted in said card slot.

3. The event notification system of claim 2, further including an access panel having an intrusion latch operatively coupled to the supervisory processor, for providing, to the supervisory processor, an intrusion event indicating whether the panel is open; wherein:

one of said platform events includes said intrusion event;

the operating system causes a pending interrupt to be stored in a register in response to notification, from the local service processor, that the access panel is open; and

upon booting said operating system, said pending interrupt indicates that said intrusion event occurred since the last boot;

whereby, if no said intrusion event is indicated upon booting said operating system, boot time for the operating system is minimized by avoiding scanning for non-existent devices.

4. The event notification system of claim 3, wherein, after receiving notice of the intrusion event, the operating system causes indicia of said notice to be cleared so that the intrusion event is only reported once.

5. In a computer system including at least one cell comprising multiple processors, each of which has an operating system associated therewith, a method for removal and replacement of I/O cards while the computer system is operating, the method comprising the steps of:

notifying a supervisory processor that a doorbell event has occurred, when a doorbell switch, associated with an I/O card slot, is pressed;

sending a message, indicating that said doorbell event has occurred, from the supervisory processor to a local service processor on the cell containing the operating system responsible for the I/O card slot;

sending a notification of the doorbell event and indicia of the I/O card slot associated with the doorbell event from the local service processor to the operating system on the cell associated with the slot for which the doorbell switch was pressed; and

powering off the slot for the I/O card slot associated with the doorbell event.

6. The method of claim 5, wherein the slot associated with the latch event has an associated I/O driver, including the additional step of shutting down the I/O driver for the I/O card slot associated with the doorbell event prior to powering off the slot.

7. The method of claim 5, wherein the message from the local service processor indicating the latch event is written to RAM.

8. The method of claim 5, wherein a call is issued from the operating system to a firmware routine to get the message indicating the latch event.

9. The method of claim 8, wherein a notification is sent from the firmware routine to the operating system indicating the slot associated with the latch event.

10. The method of claim 5, wherein an attention light is illuminated after the slot is illuminated, to notify a user that the card in the I/O card slot associated with the doorbell event can be removed.

11. The method of claim 5, wherein the supervisory processor notifies only the local service processor in the cell containing the operating system responsible for controlling the card associated with the doorbell event.

12. The method of claim 5, wherein, when a board is re-inserted into the slot, a signal indicating the occurrence of a latch event is generated for the I/O card slot associated with the slot into which the card was re-inserted, including the additional steps of:

notifying the supervisory processor of the latch event;

sending notification of said latch event from the supervisory processor to the local service processor on the cells containing the operating system responsible for the I/O card slot;

writing a message from the local service processor indicating the latch event;

issuing a call from the operating system to retrieve the message indicating the latch event;

sending a notification to the operating system indicating the slot associated with the latch event; and

powering up the slot associated with the latch event, thereby making the slot available for use without performing a re-boot operation.

13. The method of claim 12, including the additional step of enabling the I/O driver for the specific slot associated with the latch event prior to powering up the specific slot.

14. The method of claim 12, wherein the local service processor writes said message, indicating that said doorbell event has occurred, to scratch RAM.

15. The method of claim 12, wherein the operating system calls a firmware routine to get a specific said doorbell event after notification of the doorbell event is sent to the operating system.

16. The method of claim 15, wherein the firmware routine notifies the operating system of the specific slot that is associated with the doorbell event.

17. The method of claim 12, wherein the supervisory processor notifies only the local service processor in the cell containing the operating system responsible for controlling the card associated with the latch event.

18. In a computer system including at least one cell having an operating system associated therewith, and including an access panel that provides access to peripheral I/O cards controlled by the operating system, a method for minimizing boot time for the operating system by avoiding scanning for non-existent devices, the method comprising the steps of:

notifying a supervisory processor that an intrusion event has occurred when said access panel has been opened;

sending notification of said intrusion event from the supervisory processor to a local service processor;

writing a message from the local service processor indicating the intrusion event;

issuing a call from the operating system to retrieve the message indicating the intrusion event;

sending a notification to the operating system indicating the slot associated with the intrusion event;

storing a pending interrupt in a register in response to notification, from the local service processor, that the access panel is open; and

upon booting said operating system, checking for said pending interrupt to determine whether said intrusion event occurred since the last boot;

whereby, if no said intrusion event is indicated upon booting said operating system, boot time for the operating system is minimized by avoiding scanning for non-existent devices.

19. The method of claim 18, wherein the message from the local service processor indicating the intrusion event is written to RAM.

20. The method of claim 19, wherein a call is issued from the operating system to a firmware routine to get the message indicating the intrusion event.